Radiation Doses on Storage Ring Magnet Hoses

By Mark Jaski

Radiachromic dosimeters were placed on selected magnet hoses in the storage ring between October 2002 shutdown and December 2002 shutdown. Dosimeter locations were selected so higher radiation doses would result, such as hoses near absorbers and hoses at beam height. Figures 1 through 4 show the dosimeter identification numbers and their corresponding locations.

Table 1 shows the dose results that were recorded during the time span between the shutdowns along with the estimated daily dose rates. The radiachromic dosimeters have a minimum dose range of 0.14 Mrad. Any value at or beneath this minimum is below the minimum range of the dosimeter.

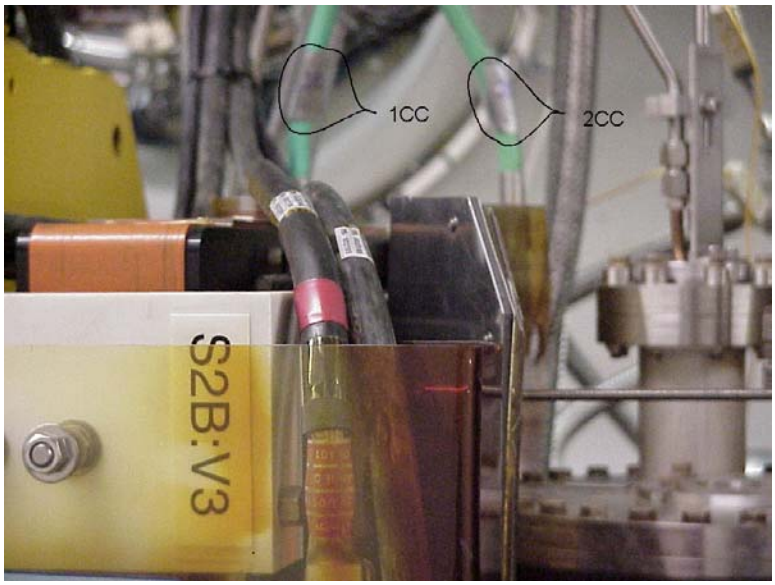

Figure 1: 1CC AND 2CC dosimeter locations

Acknowledgements

Thanks to P. K. Job and Julie Alderman for helping to locate and read the dosimeters.

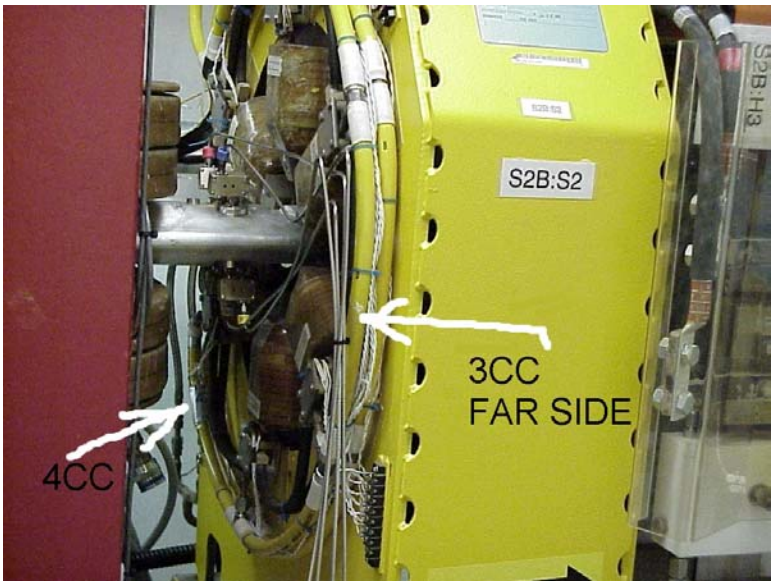

Figure 2: 3CC AND 4CC dosimeter locations

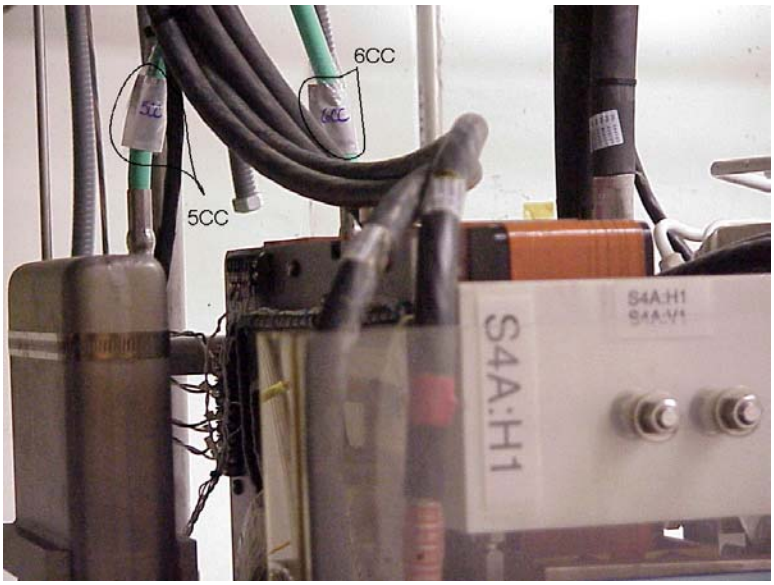

Figure 3: 5CC AND 6CC dosimeter locations

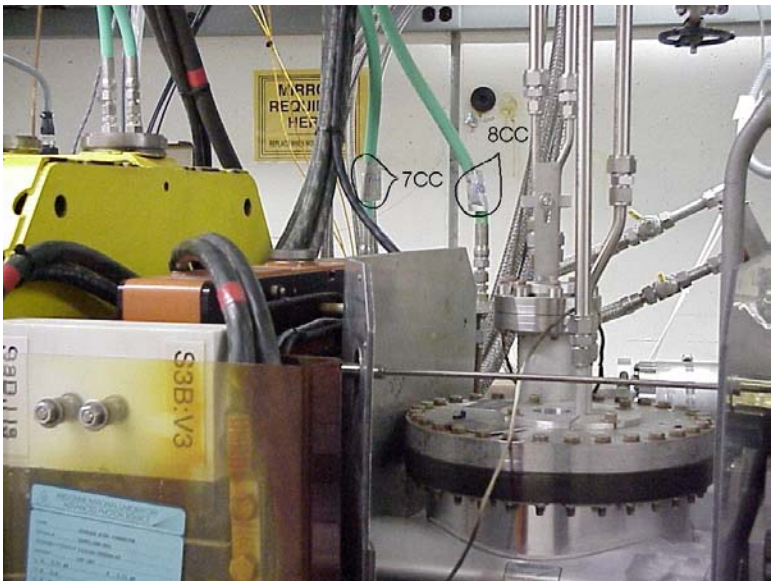

Figure 4: 7CC AND 8CC dosimeter locations

Table 1: Radiation dose results

Film #	Location	Dose	Estimated Daily Dose Rate
			10/4/02 to 12/20/02 = 77 days
		(Mrad)	(rad/day)
1CC	Sector 2: (S2B:V3) Green hose	0.35	4545
2CC	Sector 2: (S2B:V3) Green hose	2.1	27273
3CC	Sector 2: (S2B:S2) Yellow Hose	≤0.14	≤1818
4CC	Sector 2: (S2B:S2) Yellow Hose	≤0.14	≤1818
5CC	Sector 4: (S4A:H1) Green hose	≤0.14	≤1818
6CC	Sector 4: (S4A:H1) Green hose	≤0.14	≤1818
7CC	Sector 3: (S3B:V3) Green hose	0.29	3766
8CC	Sector 3: (S3B:V3) Green hose	2.3	29870